

## Weaver Image Reject Mixer With Fine Resolution Frequency Step Size

### ABSTRACT OF THE DISCLOSURE

5           Methods and apparatus, in accordance with the present invention, use at least two phase-locked loop based frequency synthesizers to provide a synthesized frequency output having a step size of X, where X is less than the step size of any of the at least two phase-locked loop based oscillators. By combining a first signal having a first frequency, with the output of a first frequency synthesizer having a first frequency step size, NX, to produce an intermediate signal which is in turn combined with the output a second frequency synthesizer having a second frequency step size, MX, an output signal is produced. M and N are related such that  $i \text{ times } M = N \pm 1$ , and i, M and N are integers. By varying the output frequency of the first and second frequency synthesizers, the frequency of the output signal is changed by steps of X, where X is less than the step size of either the first or second frequency synthesizers.

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